

Teaching and learning with Web 2.0 technologies

Findings from 2006 - 2009

www.education.vic.gov.au

*Every
child,
every
opportunity*



Published by the Communications Division
for Innovation and Next Practice Division
Department of Education and Early
Childhood Development

Melbourne
March 2010

©State of Victoria (Department of Education
and Early Childhood Development) 2010

The copyright in this document is owned by
the State of Victoria (Department of Education
and Early Childhood Development), or in the
case of some materials, by third parties (third
party materials). No part may be reproduced
by any process except in accordance with
the provisions of the *Copyright Act 1968*, the
National Education Access Licence for Schools
(NEALS) (see below) or with permission.



An educational institution situated
in Australia which is not conducted
for profit, or a body responsible for
administering such an institution
may copy and communicate the materials, other
than third party materials, for the educational
purposes of the institution.

Authorised by the Department of Education
and Early Childhood Development, 2 Treasury
Place, East Melbourne, Victoria, 3002.

This document is also available on the internet at
www.education.vic.gov.au/researchinnovation

Foreword

Our current generation of students live in a digital world. These students are members of an increasingly complex and globalised society that is rich in both technology and information. Students today are constantly interacting with a range of technologies. They are producers and consumers of content and have regular engaging opportunities for interaction, collaboration and informal learning.

Having the capabilities and confidence to interact with these technologies is critical to success in all aspects of life in the 21st Century. Young people need to develop sound creative and critical thinking, problem solving, decision making, communication, collaboration, negotiation and self direction skills. They also need the ability to find, select, structure and evaluate information efficiently and effectively.

Our school system must continually strive to unlock the full educational potential of digital technologies. The challenge for our schools is to create engaging learning environments with opportunities that stimulate, extend and deepen student learning, and embed the use of the technologies that students use so ubiquitously in their daily lives. Most students are well connected to technology, information resources and networks when they are away from school and they rightly expect to learn in a school environment that mirrors this.

This report is the culmination of four years of research in schools by practitioners about the impact of Web 2.0 technologies on student learning. The Victorian Government has invested over \$2.35 million in this research to better understand how emerging technologies can enable learning outcomes and engagement for Victorian students.

This research confirms that integrating technologies in teaching and learning can drive changes in teacher practice and have a positive impact on student learning. This is achieved through changes in student and teacher practices and attitudes, the creation of partnerships both in and beyond the classroom, the provision of personalised/ scaffolded pedagogy, and by mitigating disadvantage.

I trust you will find this research useful in guiding how technologies can enable improved teaching and learning in your classroom, school and network.

A handwritten signature in black ink, appearing to read 'Chris Wardlaw'.

Chris Wardlaw
Deputy Secretary
Office for Policy, Research and Innovation



Contents

Foreword	3	3.2 Blogs and wikis	18
Contents	4	What are blogs and wikis?	18
Executive Summary	5	Examples of use in Victorian schools	18
1. Web 2.0 Research Projects 2006-2009	6	Technologies used in blogs and wikis	20
1.1 Why were the Research Projects conducted?	6	What are teachers saying?	20
1.2 What is Web 2.0?	6	Considerations for use	20
1.3 An introduction to the Research Projects	7	3.3 Social networking in education	22
Emerging Technology Program 2006-2008	7	What is social networking?	22
KnowledgeBank: Next Generation Project 2008-2009	7	Examples of use in Victorian schools	22
Innovating with Technologies Research Program	7	The technologies used in social networking	23
2. Summary of findings	8	What are teachers saying?	23
2.1 Observed benefits in teaching and learning practice	8	Considerations for use	23
From teacher-centred learning to student-centred learning	8	3.4 Electronic gaming devices and game design	24
Students responding to more meaningful assessment	8	What are gaming devices and game design/programming software?	24
Greater student engagement and motivation	9	Examples of use in Victorian schools	24-25
Connected learning and greater collaboration	9	Technologies used in gaming and game design	26
Mitigated disability, remoteness and disengagement	9	What are teachers saying?	26
2.2 Enablers and challenges for effective use of Web 2.0 technologies	10	Considerations for use	26
Enablers	10	3.5 Web conferencing and Voice over Internet Protocols (VoIP)	27
Challenges	10	What is web conferencing?	27
3. Web 2.0 technologies in practice	12	Examples of use in Victorian schools	28
3.1 Streaming media	12	What is Voice over Internet Protocols (VoIP)?	28
What is streaming media?	13	Examples of use in Victorian schools	28
Examples of use in Victorian schools	13-16	Technologies used in web conferencing and VoIP	29
Technologies used in streaming media	16	What are teachers saying?	29
What are teachers saying?	17	Considerations for use	29
Considerations for use	17	4. Resources	30
		Learning On Line	30
		FUSE – Find Use Share Education	31
		Virtual Conference Centre	31
		5. Appendix – Participating schools	32-34

Executive Summary

The Web 2.0 Research Projects aimed to identify how teachers and students can benefit from Web 2.0 technologies, and provide practical guidance based on examples of actual use in Victorian schools.

The findings were very positive: trial participants reported opportunities for enriched teaching practice and improved student attitudes and behaviours as a result of integrating the technologies into curriculum areas. To achieve these benefits, it was noted that the educational focus must remain on the subject matter – not on the technology itself.

The Research Projects encompassed three separate programs between 2006 and 2009: the Emerging Technology Program 2006-2008; the KnowledgeBank: Next Generation Project 2008-2009; and the Innovating with Technologies Research Program, conducted in 2009. Trials and pilots were conducted, and evaluations were made via surveys, discussions and focus groups. This report represents the culmination of all this research, and includes many examples of projects undertaken in Victorian schools.

In brief, positive impacts on teaching and learning practice that were observed included:

- A shift from teacher-centred learning to student-centred learning, enabling teachers to develop more authentic tasks and accommodate different learning styles;
- More meaningful assessment, including peer review and publication to authentic audiences – both of which encouraged students to present higher quality work;
- Increased student engagement, as students were encouraged to construct new knowledge with teachers as coaches and mentors;
- More collaborative learning, with student connections formed with experts, parents and peers;
- Mitigation of disadvantage to geographically remote locations and students with special needs through assistive devices, virtual classroom technologies and gaming.

The Research Projects also highlighted a number of ongoing challenges to realising the benefits of the technologies. Access to technology, hardware, support and/or broadband speed is not always adequate at the local level; internet usage costs can be an issue; and planning and implementation place demands on teachers' time and schools' IT infrastructure.

Teachers are encouraged to use this report to understand the wealth of educational opportunities offered by Web 2.0 technologies, and to draw creatively on the examples in thinking about possibilities within their own schools.

1. Web 2.0 Research Projects 2006-2009



1.1 Why were the Research Projects conducted?

Web 2.0 technology enables students and teachers to communicate, collaborate and create content, individually or together, and then publish to a **world-wide** audience. The technology is becoming increasingly simple and accessible, and the potential educational benefits are immense.

The Innovation and Next Practice Division in the Department of Education and Early Childhood Development wanted to provide teachers with practical information about the possibilities and impact of integrating the technologies into curriculum areas. To this end, the Department coordinated a series of Research Projects that were broad-based, rigorous and, importantly, included pilots within a large number of Victorian schools and in a variety of educational settings.

The findings presented in this report, are both positive and rich. Technology is explained; insights regarding opportunities and potential pitfalls are drawn from the experience of trial participants; and many real classroom examples are briefly described. It is hoped that teachers interested in exploring the possibilities within their own school will find this report encouraging and useful.

1.2 What is Web 2.0?

'Web 2.0' refers to a range of technologies that allow users within web-based communities to both access and contribute to website content and web-enabled events. Web 2.0's participative and collaborative attributes distinguish it from earlier web functionality, which was largely 'read-only'.

Potential educational benefits of Web 2.0 technologies include:

- Students can access and contribute to a collaborative learning program anywhere and anytime.
- Students can more successfully undertake self-directed, enquiry-led learning, while teachers can easily observe, record and guide each student's personal learning path.
- Students and teachers can be connected to resources, experts, parents, communities, and peers in other schools in Australia or overseas.
- Student work can be self or peer assessed.
- Students can bring to their schoolwork the technology skills and familiarity they have developed in their personal lives.
- Wherever adequate access to infrastructure and fast, reliable broadband service has been established, educational disadvantages arising from rural isolation, disability, disengagement and socio-economic factors can be mitigated.

1.3 An introduction to the Research Projects

The Research Projects presented in this report represent a strong research base. Principals, teachers and students from more than 200 schools across Victoria were involved in a range of programs between 2006 and 2009. The programs included:

- Emerging Technology Program
- KnowledgeBank: Next Generation Project
- Innovating with Technologies Research Program.

Emerging Technology Program 2006-2008

The Emerging Technology Program aimed to promote the use of technologies to support new teaching and learning approaches. Teachers scoped their own projects based on their students' learning needs. More than 200 schools participated in 58 projects over the three-year program.

KnowledgeBank: Next Generation Project 2008-2009

This initiative comprised:

- The Collaborative Learning and Research Program (CLRP): a series of trials conducted in 75 schools to explore and identify how various Web 2.0 technologies could be used most effectively to facilitate improved teaching and learning outcomes. These trials were conducted in four stages over 2008 and 2009, with each trial run over a 12-week period. Each stage focused on specific technologies:
 - Blogs or Podcasting
 - Wikis or Streaming Media
 - Games or Game Making
 - Web Conferencing.
- Investigation of the potential of specific Web 2.0 educational tools through:
 - Three pilot projects (Intel® Skool, SuperClubPLUS Australia and Microsoft Kodu)
 - Targeted Languages Other Than English (LOTE).

Throughout all of these projects, participating teachers provided feedback through surveys conducted prior to, during and following each trial and pilot. These surveys asked teachers to rate student learning progress, their attitude to learning and engagement/behaviour, and to comment on the degree of difficulty in implementing the new technology, and its readiness for application to other educational and curriculum settings.

Teachers also reported on activities within their classrooms, and principals and students gave general feedback about the value of involvement in the project.

Innovating with Technologies Research Program

The 2009 Innovating with Technologies Research Program (ITRP) involved 30 primary, secondary and special schools over two terms. Almost 600 students in 35 classes participated in the trials.

The trials posed the question: 'Can the use of information and communication technology (ICT) in teaching and learning support increased student performance in literacy, numeracy or Languages other than English (LOTE)?'

Information was gathered via 'before and after' teacher surveys and student interviews.

2. Summary of findings

‘One student had totally disengaged from the class. He attended, but refused to participate or complete any work. By the end of this project this student was actively involved and keen to improve his Japanese so he could contribute to his group’s video.’

The Research Projects confirmed that these new technologies can enrich teacher practice and enhance student learning when integrated into teaching and learning. During trials, participants reported that their involvement in projects led to the creation of partnerships both in and beyond the classroom; enabled personalised/ scaffolded teaching and learning; and mitigated disadvantage.

A number of challenges that impacted on the use of the technologies during the trials still remain. In particular, access to technology resources (especially broadband speed) and support, and time required for planning and developing authentic tasks, are still issues for teachers.

2.1 Observed benefits in teaching and learning practice

Changes to teaching and learning practice were identified in a number of areas including:

- A shift to student-centred learning
- More meaningful assessment from the perspective of both teachers and students
- Increased student engagement and motivation
- Better connectedness to the world and greater collaboration
- Mitigated disability, remoteness and disengagement.

From teacher-centred learning to student-centred learning

As a result of incorporating a Web 2.0 technology, teachers often took on the role of facilitators, focusing less on traditional instruction and more on planning and supporting learning.

Teaching became more purposeful and sharply focused on specific knowledge or skills, contributing to rapid student progress. Teachers were able to take a more deliberate approach to lesson planning and developing authentic tasks that were relevant to the student and contributed to student learning.

Teachers designed tasks that accommodated different learning styles and purposes and made use of more diverse teaching resources, while students began to take on roles as coaches, mentors and leaders in the learning process.

Students responding to more meaningful assessment

Students became more reflective, accepting of feedback and quality-conscious in response to more transparent, collegial and timely assessment.

Teachers began to more accurately identify students’ knowledge and skills, and to introduce assessment tasks and processes that contributed to further learning. The technologies supported teachers in developing assessments that measured deeper conceptual understanding and more defined skill sets. Assessments varied from teacher

and device-assisted assessments to self and peer reviews. Monitoring of students’ progress using technologies (e.g. blogging) was often instantaneous and timely, and student behaviours became more collegial and accepting of peer review/external feedback.

Students also engaged in more reflective and self-monitoring tasks, which added to their understanding. More transparent assessment criteria, together with collaboration and peer review encouraged better performance and a higher likelihood of students completing tasks. The public nature of students’ work and having an authentic audience (through blogging, web pages, Nings, and web conferencing) made students more aware of ‘netiquette’ and the need to present high quality products.

Greater student engagement and motivation

The novelty or familiarity of certain technologies already used by students outside the classroom increased student engagement and motivation for completing tasks.

Collaborative tools, moderated social networking sites (e.g. SuperClubsPLUS Australia) and gaming were especially popular, and the breadth of learning tasks that were accommodated by Web 2.0 technologies contributed to higher levels of engagement. Students constructed new knowledge in response to the allocation of more self-paced tasks and less dependence on traditional instruction.

Connected learning and greater collaboration

The defining features of Web 2.0 technologies – participative and interactive – led to more collaborative learning. Students became better connected to the world outside their classroom, and more inclined to produce high-quality work, in the knowledge that it would be viewed by an authentic audience.

Web 2.0 technologies promote genuine interaction with resources, coaches, peers and experts within and beyond the school. Students worked together with students from their class (both within and outside school hours) and with peers from other schools in Australia and overseas, and engaged with experts and parents.

Students posted work on blogs and wikis, participated in web conferencing and developed podcasts and videos that would become more broadly or publicly accessible. Having an authentic audience gave students ‘more purpose’ in their learning and raised their achievement levels.

LOTE projects that linked students to native speakers of the language being studied led to a more intense desire among students to ‘get it right’. Students also gained an understanding of other cultures through communication with experts, networks beyond the school and exposure to a global audience.

Mitigated disability, remoteness and disengagement

Web 2.0 technologies support differentiated learning and, during trials assistive devices, virtual classroom technologies and gaming were effective in mitigating disability, remoteness and disengagement.

For example, social networking enabled gifted students to extend their learning and connect with other students of similar ability across and beyond their school. Podcasting of daily timetables, camp information, ‘social stories’ about appropriate behaviours and advanced notice of changes in staffing or routine, successfully addressed the emotional requirements of students with special needs and increased the enthusiasm and capacity of some under-achieving students to learn.

Radios, vodcasts, games, film making and animation encouraged and elevated the importance of oral expression. Blogging, discussion boards and script writing developed written skills. Virtual classrooms, Nings, the internet, email and video conferencing facilitated access to resources, experts, broader learning networks and – for teachers – greater access to professional learning opportunities.

2.2 Enablers and challenges for effective use of Web 2.0 technologies

Enablers

The responses from teacher surveys indicated that integrating their chosen technology into the classroom curriculum was a relatively easy task for most, with support from subject experts being an important enabler.

Data from the Research Projects showed that:

- While 22 per cent of teachers in the Innovating with Technology Research Program expected the IT element of the project to be hard, only seven per cent actually found this to be the case (Figure 1, p11).
- Blogs, podcasting, social networking and streaming technologies were less challenging technologies for teachers to use than web conferencing and gaming (Figure 2, p11).
- Teachers were more likely to seek support from experts in the subject domain (to develop authentic tasks and assessment) than they were to seek technical support. The focus of support was on the pedagogy rather than the technology itself.

Challenges

The Research Projects revealed a number of ongoing challenges to the effective use of the technologies.

Nevertheless, a third of participating teachers in the KnowledgeBank: Next Generation CLRP trials who responded to a follow-up survey indicated their intention to continue using the technology, and greater sustainability was reported in the ITRP trials. Teachers in the trials indicated that barriers to continued use included a change of school, a move to a non-teaching role, lack of time (or the funding to buy teachers' planning time), and lack of access to computer infrastructure.

Local technology resources

Access to technological resources and applications is improving in schools, but local factors (such as limited hardware, support and/or broadband speed) continue to constrain implementation of technology in some schools. Broadband speeds in many schools, though adequate overall, slow significantly when groups of students engage in interactive internet use.

From students' perspectives, this sometimes meant frustrations with unreliable or slow access to the internet, faulty computer hardware, written tutorials for online games that were difficult to follow, and the novelty of games wearing off for some by the end of the trials.

Internet costs

Costs to use the internet were often an issue for students during trial periods. It was common practice during this time for many secondary schools to charge students for internet use after a short free period.

Time commitment for teachers and IT support staff

The most significant challenge was time. A quarter of participants in the ITRP trials reported that finding time to plan for, implement and evaluate the outcomes of the new practice was hard, and less than 20 per cent found it 'easy'. Participants in the KnowledgeBank: Next Generation CLRP trials also found a lack of available time to be challenging. Trial participants reporting that time was a factor that made implementing the new technology 'hard' ranged from 37 per cent of those trialling gaming technologies to 72 per cent of those trialling web conferencing.

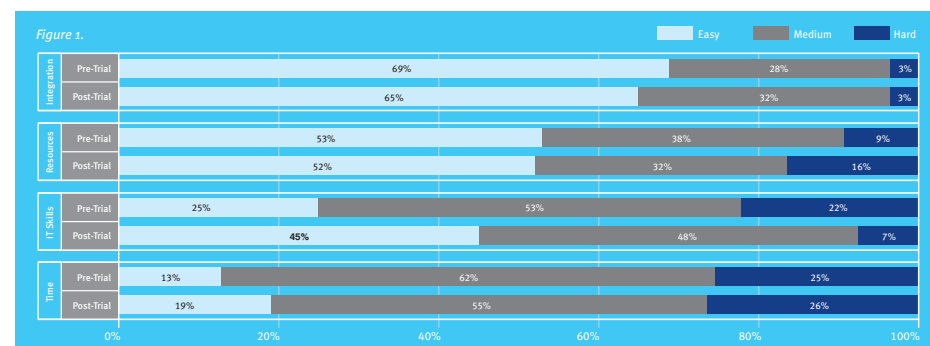


Figure 1. Degree of difficulty in integrating technologies into teaching and learning, Innovating with Technology Research Program (ITRP).

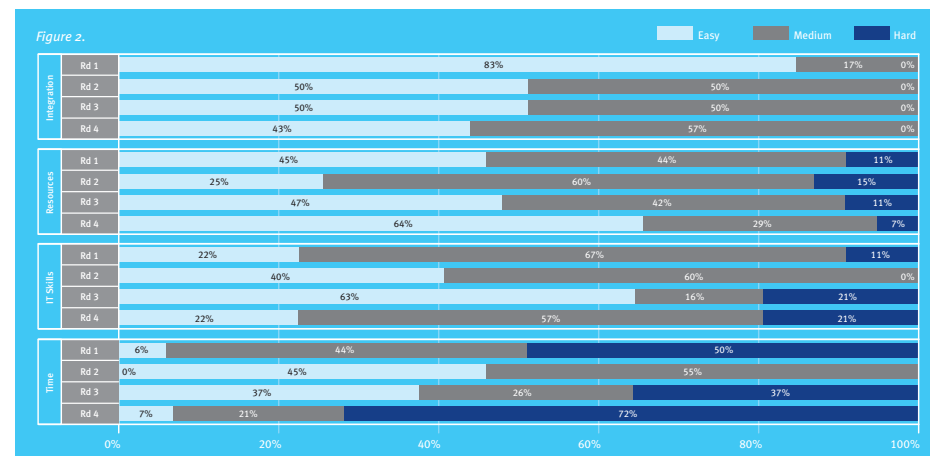


Figure 2. Degree of difficulty in integrating technologies into teaching and learning, KnowledgeBank:Next Generation CLRP.

3. Web 2.0 technologies in practice



3.1 Streaming media

(podcasts, vodcasts, animation, claymation, films, digital stories and live streaming)

Learning benefits of streaming media, as observed in trials:

- New curriculum options for specialist teachers in small, remote or country schools.
- Interconnectedness between students and the issues they were studying, and immediate access to contemporary and engaging information.
- Opportunities for students to think through ideas, plan products, solve problems and communicate information e.g. in creating their own tutorials.
- 24-hour access to learning and revision resources and new opportunities to scaffold individual student learning, with particular benefits to some under-achieving students.
- A shift from teacher-centred learning to student-centred learning, allowing teachers to become facilitators and students to become problem-solvers. Language learning and peer coaching skills improved as specific content was transmitted between students.
- Increased motivation for students to produce quality work in anticipation of authentic feedback from real audiences. Students who did not usually contribute to class discussions became more engaged, and students learning a second language were able to contextualise language use.
- Improved speaking and listening skills as a result of integration of podcasts into the curriculum.
- Deeper conceptual understanding of topics through use of claymation, animation and film making, as students formulated questions, researched topics, articulated prior knowledge, developed dialogue, communication and presented their ideas and reflected on their work.

What is streaming media?

Streaming media refers to video, audio, text or animation files that are downloaded, played or created for the internet.

Podcasting / vodcasting

A podcast is a piece of audio (sound, music or speech file) that is downloaded and can be listened to at any time using a computer, mobile phone or portable media player. Popular radio programs are common podcasts, but language lessons, film reviews, university lectures and information guides are also delivered as podcasts. Many educators are creating podcasts as single topic, anytime-access tutorials for their students or having their students create podcasts to demonstrate their understanding of particular concepts to assist their peers.

A vodcast is a podcast that includes video. These are also called video podcasts or vidcasts.

Examples of use in Victorian schools

- *Podogogy project* (Fountain Gate Primary School, 2008) – The project explored new and innovative ways to support, foster and motivate English as a Second Language (ESL) students who are starting school with below-expected language skills. Portable media players were used to give students greater access to quality audio/video language resources (e.g. story books) and the opportunity to continue their learning at home.
- *TechnoChinese* (Hawkesdale P12 College, 2008) – The teacher of a Year 8 LOTE class developed podcasts of Chinese lessons for students to listen to on their iPods. Students in turn produced podcasts of their oral tasks (using mobile phones or digital recorders) and loaded them onto the class wiki to be assessed and as an audio portfolio of their progress through the unit.
- *ESL/VCAL structured workplace learning* (North Geelong Secondary College, 2009) – Using their iPods, 10 students from refugee backgrounds recorded oral log entries of tasks completed, new vocabulary acquired and their experiences as part of their work placements program. They also created a record of their daily progress by recording personal reflections on their performance. Employers gave the students oral feedback on their daily progress (as podcasts) for reflection and assessment. Students showed an improvement in their oracy and their vocabulary increased as a result of the project.
- *An m-learning program* (Highvale Secondary College, 2008) – Teachers produced vodcasts of lessons on how to solve maths problems which were shared through the school's intranet and uploaded by students to their pocket personal computers (PCs). Students regularly accessed the podcasts to improve their understanding of mathematical problem solving and felt supported to complete tasks at home.

- *Creating our own radio station* (Amsleigh Park Primary School, 2008) – Students, staff, parents and the wider community produced a radio program that showcased the school's achievements. MP3 players were used to create podcasts when interviewing guest speakers, recording school events/excursions and creating school news reports. The project increased students' understanding of the technical and literacy skills involved in producing a radio program.
- *The world around us* (Echuca Special Development School, 2009) – The project involved students with autism and aimed to identify whether the students could become more independent and engaged in the world around them. Teachers used podcasts to deliver classroom timetables, school rules and expectations and information regarding major or unexpected events such as camp information and teacher absences.
- *Contemporary views of Japanese language and culture* (Fairhills High School, 2009) – Students used streaming media sites to provide opportunities to explore relevant and contemporary views of Japanese language and culture, produce an authentic video of their use of the Japanese language, and to receive authentic feedback from a global audience. These valuable educational resources fostered a sense of enthusiasm and motivation unmatched by any other teaching resource.

Animation/claymation

Animation/claymation is a stop-motion (or frame-by-frame) film/photography technique in which a physically-manipulated object appears to move on its own. The object is moved by small amounts between individually photographed frames, creating the illusion of movement when the series of frames are played as a continuous sequence. Clay figures are often used in stop-motion animations, hence the term 'claymation'. Stop-motion animation also includes cell animation, pixilation, puppet animation and time-lapse.

Examples of use in Victorian schools

- *Slow down* (Rosehill Secondary College, 2008) - Students in Years 7 and 8 developed clay animations of scientific concepts. This project built on the research and work of Dr. Gary Hoban, who developed the 'slowmation' teaching approach. The process supported students' learning, leading to deeper understanding and enquiry.
- *Claymating in Italian* (Daylesford Primary School, 2009) – Grade 5/6 students at the school created their own scripts on selected topics in Italian and re-created these as claymation movies to be shared with the rest of the class and with the rest of the school at the end of year concert. As a result, students improved their LOTE oral and written skills.
- *Anywhere, anytime learning* (Yarra Road Primary School, 2008) – The project explored how the iPod Touch could be used to complement a community-based, online learning and teaching strategy of improving primary students' engagement and outcomes in literacy and numeracy. Year 6 students planned, scripted, filmed, edited and published a range of literacy and numeracy video-based tutorials for students in Year 4. The finished video or podcast tutorials were then transferred to the class iPod Touches for viewing anywhere, anytime. The podcast tutorials have also been uploaded to the school's website.
- *Science animation competition* (2008 - 2010) – This state-wide, annual science animation competition is sponsored by the Department of Education and Early Childhood Development and managed by the Hume regional office. The competition encourages students to explore science principles and document their findings through short (60 second) films or animations. Previous entries described concepts such as thermal properties of materials, transformation of a tadpole to a frog, respiration, phototropism, why the sky is blue and pollution.
- *Musical theory animations* (Vermont Primary School, 2006) – Primary school students developed a series of eight musical theory animations teaching all the necessary skills to play the recorder. The animations were created using Macromedia Flash MX and shared on a website.

Films

Examples of use in Victorian schools

- *My school life* (Rosanna Golf Links Primary School, 2009) – Eight students with Aspergers Syndrome were involved in producing films about their school life – giving them valuable skills in understanding how others saw their behaviours, making social connections, interviewing, initiating conversations, working in teams and accepting new experiences/change.
- *'L'Acqua'* (Robinvale Secondary College, 2008) - Year 7 and 8 LOTE students created a four minute film focusing on the theme 'water' as part of the region's LOTE promotion for the 2008 United Nations Year of Languages. The video is in Italian with English captions and highlights the effects that lack of water has had on the Loddon-Mallee region's prosperity.
- *Using flip cameras to enhance student learning* (Bendigo Senior Secondary College, 2008) – Victorian Certificate of Applied Learning (VCAL) students used flip cameras to interview prominent historians about the town's gaol precinct, develop advertising campaigns for products in the business management course, analyse movement and body responses in physical education, and to capture student perceptions for the college open day. Teachers used footage to provide feedback to students about their performance in language-based tasks.

Digital stories

Digital stories combine the art of traditional story-telling with the use of new technologies. Digital story-telling allows students and teachers to tell their own stories using simple multimedia software to combine the use of video, photos, art and audio such as music, narration and/or sound effects into a single presentation.

A digital film is the product of edited material which was filmed using a digital video camera/mobile phone/device, for example, a video clip, mini-documentary or video tutorial.

Examples of use in Victorian schools

- *Mobile phone debt* (Lilydale High School, 2008) – Year 8 Economics students developed consumer literacy and raised awareness by producing a number of digital stories on the topic of mobile phone debt.
- *Digital immigration stories and war documentary* (Thornbury High School, 2008) – Year 9 English and Humanities students produced a documentary on Australia's involvement in World War II and personal immigration stories by interviewing family, friends or neighbours. A CD was compiled of all the stories and shared with parents.
- *New arrivals* (Noble Park English Language School, 2009) – Newly arrived migrants and refugee students shared their personal stories, developing their recounts/biographies by creating digital stories (with audio narration) of their experiences coming to or living in Australia.



‘Student collaboration in technical skill development and problem-solving was amazing. As soon as one student had worked out a solution or discovered a feature of the tool, it was quickly shared with other students. Students were both learners and teachers, with an incredible willingness to share and assist each other.’

Live streaming

Live streaming refers to material that is received by an audience at the same time that it is being created. Live radio and television broadcasts transmitted in a digital format are examples of live streaming, as are performances and lessons that are transmitted as they occur.

Examples of use in Victorian schools

- **MunYaWana leopard project** (Lilydale High School, 2007) – For ten weeks, students tracked individual leopards using live streaming data posted on the MunYaWana leopard project website. They plotted this information on a large scale map to monitor their leopard’s movements and worked out the animal’s territory size. Students also received photographs of leopards from a camera trapping survey. A PhotoStory on students conducting research via webcam on leopards in Africa was produced about this VCE Environmental Science unit. This activity was set up in association with Monash University and the MunYaWana leopard project.
- **Reptiles On Line** (Lilydale High school, 2008) – Students used web camera technologies to capture animal behaviours that were normally difficult to see, for example: reptiles shedding skins, reproduction and egg laying and hatching.

Technologies used in streaming media

- Digital audio-players (or MP3 players) – devices that store, organise and play audio files.
- Personal Digital Assistants/portable media players – devices that store, retrieve and play music, videos and photos. They can also connect wirelessly to the internet, allowing users to access websites and email. An iPod Touch is a portable media player and wireless internet mobile platform.
- Microphones/digital voice recorders – devices used to record sound that can be converted into podcasts and are often an accessory to a digital audio (MP3) player.
- Digital video cameras – portable devices for recording video and audio onto video tapes or inbuilt hard drives.
- Animation software – software used to capture, compile, edit and enhance animations e.g. Claymation Studio, Kerpoof, Roller Mache, Zimmer Twins.
- Flip cameras/USB cameras – simple digital video-capturing devices with a Universal Serial Bus (USB) connection for direct downloads onto a personal computer.
- Digital cameras – devices that are capable of capturing both still photographs and video in a digital format.
- Web cameras – video-capturing devices connected to computers or computer networks, using USB or wireless internet.

What are teachers saying?

‘Students have shown that they can verbalise their thoughts better because they have to think about what they are going to say and how they will say it before they are recorded.’

‘We have not been able to provide music lessons in the past and are now able to do so by using staff at other schools and filming them and creating podcasts. This allows for flexibility in providing programs and what we are able to teach.’

‘They (the students) were more creative with their vocabulary. The device was also helpful with editing of written text; they wrote, then read and recorded their text to listen to. This experience has reinforced that written language can be improved by providing students with an audience.’

‘The use of student coaches removes the need for teachers to be expert technology users, while expertise in the use of technologies is easily spread by student collaboration and peer teaching.’

‘Students’ LOTE oral skills improved as students were more confident speaking through their animated characters.’

Considerations for use

- Schools need to manage access to (blocking or unblocking) and use of Web 2.0 sites based on students’ needs, capabilities and capacity.
- Students should be explicitly taught critical literacy skills so that they can recognise irrelevant, inaccurate or misleading information.
- Students should be supervised while using streaming media sites.
- Teachers should emphasise a culture of safe, responsible and ethical behaviours in the digital world.
- Teachers should develop, in consultation with students, support materials and resources that will assist the production and critical evaluation of student-developed media files (i.e. an evaluation criteria matrix).
- Teachers should remind students that their work may potentially be seen by millions of other people.
- Schools should ensure the personal identification of students is not possible from material published on open access internet sites.



3.2 Blogs and wikis

Learning benefits of blogs and wikis, as observed in trials:

- More active participation and questioning by students, and deeper understanding of topics as a result of sharing facts and dialogues.
- Increased commitment to quality by students when material is likely to be exposed to a wider audience. This led to an increase in independent learning and the amount of work completed out of school hours.
- Opportunities for teachers to extend collaboration beyond the classroom to the wider school community and into students' homes, improving the regularity of communication with parents.
- Students learned how to be considered and constructive when providing feedback on each other's work via blogs. Teachers believed this led to greatly improved quality of work and reduced the editing required by teachers.
- Effective and easily accessible records of student progress.
- Integration of literacy skills into projects that had not, traditionally, had a literacy focus. For example, students used blogs to reflect on and describe how they went about solving mathematical problems.

What are blogs and wikis?

- A blog is a type of website, usually maintained by an individual, that contains regular commentaries of events and advice or other materials such as images, videos or links to external web pages. Many blogs provide commentary on a particular subject; others function as more personal online diaries. Readers are encouraged to provide feedback and comments that relate to the blogger's postings.
- A wiki is a web space where people can work together to build and publish information and content. Wikipedia, the web-based encyclopaedia, is a well known example of a wiki. Whilst Wikipedia is a worldwide collaboration, it is possible for teachers to set up their own smaller wikis to allow several students, a whole class or multiple classes to work together.

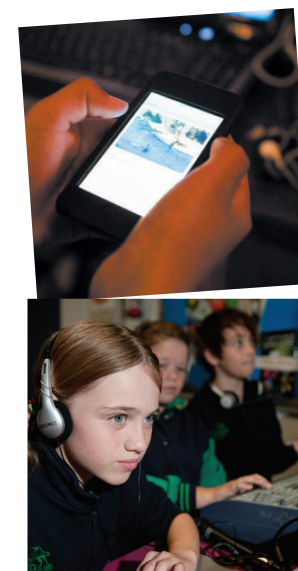
Examples of use in Victorian schools

- *Global Teacher and Global Student blogs* – These blogging environments were created to support Victorian teachers with blogging. They list examples of blogs created by teachers for professional or classroom use. Commenting on these and other blogs can be a good way to get started.



- *Blogging our curriculum vitae* (Belvoir Special School, 2008) – This VCAL project focussed on intellectually disabled students. Students created a class blog and learned how to make posts, read comments, insert photos and create photo stories. Students developed individual blogs that became their online curriculum vitae, presenting a collection of their achievements and showcasing their work.

- *Ping* (Hawkesdale P12 College, Heywood Secondary College, Casterton Secondary College, Casterton Primary School, Balmoral Secondary College, 2009) – Ping is an online music education blog. This distance education program used virtual approaches to enhance young people's involvement in music. Students developed their own music composition using professional guidance and recordings from Melbourne Symphony Orchestra musicians.
- *Interactive language classroom* (Croydon Secondary College, 2008) – Students created wikis as part of their LOTE studies, which were then discussed and edited in the classroom by accessing the wiki through an interactive whiteboard. The school also invited a German class to participate, so that students in the school benefited from an exchange with native German speakers.
- *Ultimate writing* (Melbourne High School, 2008) – A Year 9 wiki was developed for student collaboration on group-written submissions for the Taronga Foundation Poetry Prize. The final product was a class poem created using the wiki. Students contributed to the group piece in the form of verses, lines, and corrections to other students' spelling and syntax.
- *English across the globe* (Bendigo Senior Secondary College, 2009) – Year 11 English language students used blogs to discuss their learning and reflect on their learning journey by exploring an area of interest in more depth. Students were encouraged to act as authors and contributors to other student blogs. This provided students with an alternative method of creating and sharing knowledge and an opportunity for higher levels of reflection and increased levels of engagement.
- *Personal learning blogs* (Horsham West Primary School, 2009) – Year 4 students used a blog and mobile phones to record a personal digital learning portfolio. Students used the phone to voice record, film and photograph their learning over a nine-week period. Their digital information was then uploaded to a blog where they were able to annotate their learnings. The blog gave students an authentic audience and purpose leading to higher levels of engagement. In particular, they were willing to share their achievements, give and receive feedback and improve their own work.



Technologies used in blogs and wikis

- Personal computers/laptops/notebooks
- Blogging tools (e.g. Global teacher and Global student) – tools enabling the uploading of multimedia; allowing moderation (including the removal of inappropriate contributions); allowing users to subscribe and receive regular updates and allowing the creator or the vendor to host the blog and source site usage statistics.
- Wiki software – an application or website that allows its users to collaboratively create and edit pages. The Ultranet will have the functionality enabling Victorian Government school users to create wikis. Other educational wiki providers include wikispaces and PB Works.

What are teachers saying?

'Increases levels of engagement from students in their learning. This is particularly reflected in the students' enthusiasm to continue researching and working on authoring blog posts during the school holidays.'

'Changes teaching practice – the teachers set up some guidelines for the students to begin with, but as students participated in and contributed to the blog, the blog took on a life of its own, and the teachers could now stand back and watch the blog and the deeper levels of thinking and learning evolve.'

'The exploration of student controlled blogs made me realise how responsible students can be with technology and how important student controlled web spaces can be in student learning.'

'This is an alternative method of curriculum delivery and reflection. Reflection is shared with all members of the blog, not just the teacher.'

Considerations for use

- Blogs and/or wikis should be established in web spaces designed specifically for education.
- Teachers should be the administrator for every student blog created. This will allow teachers to moderate and edit content instantly.
- Students, teachers, parents and community members should be encouraged to post to the blog regularly.
- Teachers should refocus students on the topic if they digress too far from the desired subject matter.
- Blogs or wikis need to be integrated into the curriculum. Activities should be developed that are suitable for achieving the intended outcomes. It is important that activities have a purpose that is additional to simply teaching the technology.

'There is a change from me being the centre of the learning in the class to that of a manager of the process of learning and teaching. The students became the problem solvers, and a new hierarchy was established.'



3.3 Social networking in education

Learning benefits of social networking, as observed in trials:

- Opportunities for effective pedagogical practices such as scaffolded/ differentiated learning, collaborative problem-solving and active participation in learning communities.
- Increased engagement by 'at risk' students, demonstrated by improved punctuality, class attendance, decision-making about their work, and acceptance of responsibility for their learning.
- Opportunities for increased communication between students, parents and teachers.
- Opportunities for students to develop social and emotional intelligence as they consider appropriate modes and language for authentic communication with others.
- Opportunities for team teaching, enabling more dynamic and interesting sites to be created for students as a result of multiple inputs.
- The ability to overcome logistical barriers, such as cost, scheduling, location, or the sensitivity of topics, and extend student experience through the use of virtual worlds. Children can visit a virtual zoo, virtual art exhibitions or create virtual models at little or no cost.
- Improved access to learning materials for users with specific needs and requirements.

What is social networking?

A social network (e.g. MySpace, Facebook, Xanga, Ning) builds online communities of people who share interests and/or activities, or who are interested in exploring the interests and/or activities of others. Most social networks are web-based and provide a variety of ways for users to interact, such as email, instant messaging or 'live chat'. Users can also post photos and videos.

Social networking sites can be used for projects within and between classrooms. As well as allowing communication and collaboration, such sites may also be used to enhance personal and interpersonal learning, thinking and creativity. A social networking site can be set up as public or private with invited members only and password protection.

Examples of use in Victorian schools

- *Educators' Guide to Innovation Ning* (Innovation and Next Practice Division, DEECD, 2009) – A learning community/ networking site bringing together education innovators from all over Victoria to share their practices. The site has over 600 members from Victoria and the wider education community.
- *Literacy and SuperClubsPLUS Australia* (Lyndale Greens Primary School 2009) – Grade 3-6 students at the school each created a fact file page within SuperClubsPLUS Australia. Students collected information, added their own ideas and developed 'mini-documentaries' on their topics to be shared with a wider audience.

- *SuperClubsPLUS Australia pilot 2009* – The pilot was conducted with 61 Year 3 and 4 classes across 41 Victorian schools. Students were involved in a range of activities that included building personalised web pages, completing projects, joining discussion forums, chatting with friends, uploading media and publishing articles. They also participated in 'Hot Seats' which link to authors and experts in different fields and earned 'Star Awards' as they developed their skills in cybersafe social networking. Trained mediators monitored all student activities on the site.
- *Online science fair* (Hawkesdale P-12 College, 2009) – A place was created for students to share science project ideas, resources and results with peers within and outside the classroom. Students had 24 hours a day access to the site, enabling them to track their own progress, and receive immediate feedback from peers.
- *Maths book* (Pleasant Street Primary School, 2009) – The project set out to identify whether a social networking tool could provide a differentiated curriculum for gifted and talented maths students in Years 2 to 6. The students created a social networking site using a variety of tools such as a Ning, VoiceThread, streaming media sites, images, online games and chat. Their 'Mathsbook' was found to be a highly engaging, powerful and challenging teaching and learning tool for the gifted students involved.

The technologies used in social networking

- *Ning* – an online platform for people to create their own social networks. These networks can be private and invitation-only.
- *SuperClubsPLUS Australia* – Launched in Australia in 2008, SuperClubsPLUS Australia is a safe public social networking site for primary school students. A team of qualified mediators monitor the site 24 hours a day, making sure the children are communicating safely and educating them on how to safely access the internet. Each child who joins SuperClubsPLUS Australia is validated through their school. The site actively promotes safe internet usage and anti-bullying behaviour. SuperClubsPLUS Australia establishes a safe networking environment for children aged 6-12 years old.
- *Virtual worlds/avatars* – A virtual world is a genre of online community that often takes the form of a computer-based simulated environment through which users can interact with one another and use and create objects. Virtual worlds are established for users to inhabit and interact, and users take the form of avatars visible to others graphically. These avatars negate the need for personal photos or personally identifying information in online environments. Communication is usually written, with real-time voice communication using VOIP also possible. Virtual worlds are used for games, but can encompass web conferencing and 'live chat'.

What are teachers saying?

'Students developed a voice, they had to learn to respond to the thoughts, opinions and ideas of others in a respectful way.'

'Social networking sites (such as SuperClubsPLUS) were a valuable way to develop students' technology skills and an understanding of safe, responsible and ethical internet use, in a protected environment.'

'A social networking tool can provide a catalyst – an absolute buzz of excitement for learning.'

'Small incentives (referring to the SuperClubsPLUS badges) can have a large impact.'



Considerations for use

- On public social networking sites, students should upload an avatar or other image rather than a photo of themselves.
- Schools should observe site-specific terms and conditions; in particular age restrictions.
- Teachers should look for social networking technologies that support educational applications. For example, sites should encourage collaboration, communication and should reflect the age, needs and culture of the students.
- Teachers should recognise and use students' skills, particularly when assistance is required. Students often pick up technology very quickly and teachers can use their expertise to promote peer-tutoring.
- Teachers should ensure the learning program includes instruction on areas such as safe social networking and use of appropriate language. Remind students that their work may be seen by millions of other people. Ensure students know what to do if they are uncomfortable with any element of their social networking or virtual experience.

3.4 Electronic gaming devices and game design

Learning benefits of electronic gaming devices and game design, as observed in trials:

- Students studying LOTE were encouraged to take responsibility for their own learning outside of school hours by creating an avatar and practising their language through specific assessment tasks plus general conversation and discussions amongst themselves. Students were eagerly 'hunting down' vocabulary to use in their game.
- Personalised learning opportunities, with students playing games at the appropriate 'level' and aspiring to reach higher levels.
- Instant, individual feedback, self-monitoring of improvements, and ownership of targets, all of which increased student motivation.
- Opportunities to develop and practise important social skills in maintaining routines, teamwork, adhering to rules, turn-taking, sharing, resilience-building, cooperation and appropriate competition behaviour.
- Games tutorials provide an authentic reading/comprehension task.
- Opportunities to enhance their problem-solving skills in an authentic learning environment.

What are gaming devices and game design/programming software?

- An electronic games device creates an interactive environment in which the choices the user makes can change the course of the game. Common examples of electronic games are Wii, Play Station (PS) 2 and Nintendo. An online game uses streaming video, audio and user interactivity and allows other users to join in a game.
- Many computer games simply challenge the user's reflexes or motor skills, but there is a diverse range of games that require strategic thinking, problem-solving, interpretive analysis and creativity. Learning can be enhanced if the devices/games are shared or require input from multiple users.
- Computer game design software enables the user to plan the content, rules and functionality of a game. Common examples of game design software are Kahootz, Game Maker and Scratch.

Examples of use in Victorian schools

- *Searching for the Treasure* (Keysborough Primary School, 2009) – Students produced a series of Kahootz treasure hunts demonstrating their understanding of giving and asking for directions in French. The students wrote their own dialogues and recorded their own voices to finalise their movies. Students were more relaxed when speaking French through their animated characters, giving them the confidence to speak French in front of peers.

- *Pictures from a floating world* (2009) – A drag and drop animation game that allowed users to produce their own story using backgrounds, characters and objects from high quality digital reproductions of the National Gallery of Victoria's collection of Japanese Edo period woodblock prints, incorporating music and imagery to represent emotions. Twenty Victorian (mostly rural) schools participated in the 2009 pilot across curriculum areas, such as LOTE, the arts, English and science.
- *Task Magic* (Croydon Secondary College, 2008) – Interactive authoring tools were used to make the classroom more engaging in order to improve student motivation and boost their confidence in German. Task Magic was used to create many different resources for the LOTE classroom. Students then used the interactive whiteboard to play language games in teams.
- *Scratch your way* (Gilmore Girls' High School, 2008) – This project focussed on teaching students high-order thinking skills and provided a solid foundation for programming and other technology skills. Using Scratch software, students learnt computer programming and problem-solving skills, and developed a series of folios of short movies and games.

- *Hiragana* (Derrinallum P-12 College, 2009) – The Japanese LOTE teacher developed a series of podcasts for the students' iPods introducing them to the Japanese Hiragana characters. Students used a range of downloadable games and quizzes e.g. Kana – a typing game requiring students to type in the correct English sound for the character displayed, to test their knowledge, recognition of characters and pronunciations.
- *Canmation* (Bayswater Primary School, Bayswater West Primary, Boronia West Primary, Bayswater Secondary College, 2008) – Students used computer models to create 2D drawings of buildings and then used food cans to re-create 3D versions of their drawings. The project involved approximately 250 students in Years 3-8 from four primary schools and one secondary college in building 28 famous landmarks using approximately 30,000 cans of food. The landmarks included Big Ben, the Eiffel Tower, the Turning Tower and the Great Wall of China. All food cans were then donated to charities, raising student awareness of homelessness and poverty.
- *Its all in the game* (Roxburgh Homestead Primary School, 2009) – Year 5 and 6 students used Nintendo DS and Wii games daily for 15 minutes each morning. Those using the DS games

worked independently but challenged each other to improve their scores while those using the Wii games worked in pairs or small teams to collaboratively answer and solve problems. Improvements were noted in tests, in attendance and in students' attitudes to mathematics.

- *Kodu pilot* (2009) – The Kodu pilot was conducted in 25 classes across 20 schools. The year levels ranged from Prep to Year 10 and also included special setting schools. Kodu is a visual programming language for creating games and virtual worlds. The icon-based language allowed students to design, program and test their own games. Students in these trials were encouraged to 'explore and play', to problem-solve and to articulate their thinking and learning.
- *Making games work* (Strathfieldsaye Primary School, 2009) – Students used Game Maker as stimulus to develop comprehension and reading skills. Students read tutorials, engaged in conversations to clarify and interpret the text, used reading strategies to move from text to task and wrote about the games they played and created. Teachers noted that students' engagement and connection with their learning improved, thus increasing academic rigour and achievements.

'There was wonderful improvement overall in both the number of correct answers and a reduction in time taken when completing the multiplication grid. Accuracy...moved from an average of 21/50 in the pre-test, to 39/50 in the post test. The speed of completion also improved significantly.'

Technologies used in gaming and game design

- Commercial electronic game devices – Wii, PS2, Nintendo.
- Educational games – Mathletics, Reader Rabbit.
- Kahootz – an education multimedia construction toolset created by the Australian Children's Television Foundation. Using this program, students can make 3D animations using the objects and backgrounds provided.
- Game Maker – a Microsoft Windows computer program that allows users to develop computer games without prior computer programming experience. Game Maker's interface uses a drag-and-drop system, allowing users unfamiliar with traditional programming to intuitively create games by visually organising icons on the screen. These icons represent actions that would occur in a game, such as movement, basic drawing and simple control structures. Advanced users can create complex applications with Game Maker's built-in scripting language.
- Scratch – a type of programming language that makes it easy to create interactive stories, animations, games, music and art, and to share creations online. Scratch is a free download designed to help young people aged eight and older develop 21st Century learning skills.

- Kodu – a programming environment designed for children that runs on Microsoft Windows and the Xbox 360. Kodu's programming model is simple and can be programmed using only a gaming controller.

What are teachers saying?

'The importance of the student embracing 'play' and experimentation cannot be understated in the quest for high levels of literacy.'

'Students were eagerly writing scripts or stories to accompany their games. They were aware that spelling and grammar needed to be correct for the authentic audience.'

'Embed games into a joined up curriculum and it is a hugely effective tool. Yet if the students do not reflect on the cognitive processes the depth and rigour can be easily lost.'

'Games are... similar to movies, books and other tools that have been used in schools for years. With a context and a purpose they have a powerful place in today's schools.'

'Aside from being a valuable learning tool, gaming was also a fantastic motivational tool for student behaviour and work ethic.'

Considerations for use

- Games must be selected with care and integrated with effective teaching and learning strategies.
- After the initial enthusiasm, students can tire of games as they become less challenging. It is important to structure and vary game activities to ensure that students remain enthusiastic.
- Implementation of games is critical. Be sure that the game suits the learning outcomes you are aiming to achieve. Not all games are suitable for all environments.
- Battery charging can become an issue for handheld devices.
- It is important to gain the support of the school community. Be open about the aims of using gaming in the classroom and the intended impact on student learning.

3.5 Web conferencing and Voice over Internet Protocols (VoIP)

Learning benefits of web conferencing and VoIP, as observed in trials:

- Extended educational opportunities for both students and teachers when face-to-face interactions are not possible due to distance, cost, time or the inability of an expert to be in many places at once.
- Increased commitment to producing quality work by students participating in joint projects that will be presented to an authentic audience.
- Opportunities for students to practise communication skills such as performance, public speaking, questioning and reflection, as well as other skills such as video production.
- The extended learning community enabled by web conferencing, including experts in specific subject areas, led to students expanding their interest, understanding and thinking around the topics and issues under consideration.

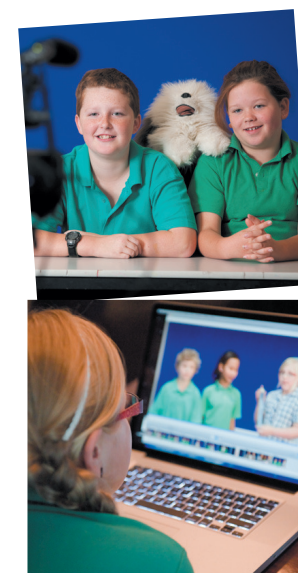
What is web conferencing?

Web conferencing is used to conduct live meetings or presentations via the internet.

The web conferencing software can either be downloaded on each of the attendees' computers or the user can access a web-based application through a website link. The only necessary equipment to participate in a web conference is a computer with internet connection and a microphone headset to enable participants to listen, speak and join in activities. The computer can be linked to an electronic whiteboard to conduct group meetings.

Presenters and participants interact using a variety of features such as audio, video, instant messaging, shared interactive whiteboard, polling, file sharing and application sharing.

'Students were much more willing to proofread and spell check work to be published online, and to seek assistance with editing.'



Examples of use in Victorian schools

- *Inside the giant squid* (Dr Mark Norman, Melbourne Museum, 2008) – A seminar conducted by scientists at the museum for school students throughout Victoria. Dr Norman conducted a live dissection of this rarely-seen 245 kg deep sea creature.
- *Online Professional Learning Program* (Innovation and Next Practice Division, 2010) – A program of free, online conferences to support teacher professional learning. Thirty-five online sessions were held covering Literacy, Maths, Science and Information and Communication Technologies (ICT). More than 780 educators participated in the sessions, which provided them with access to a range of professional learning and presenters they could not otherwise access.
- *Conference ‘Using ICT to engage middle school students’* (Lilydale High School 2008) – A practitioner conference was run in 2008 using virtual classroom technology on the following topics: graphic tablets in art, reptiles online, the filming of Physical Activity in Supportive Environments (PASE) students to review their physical performance, photostory, film production as a teaching tool, conflict resolution for leaders and the use of Global Positioning System in PASE.
- *Wimmera virtual school* – Eleven schools in the Wimmera region are delivering VCE curriculum in eight subjects across schools using web/video conferencing facilities. This is providing rural students with a much greater breadth of subject options.

- *Intel Skool Pilot* (2009) – The pilot, involving 11 Year 8 classes from six Victorian schools, explored the impact of mathematics digital resources on learning outcomes when used in conjunction with Web 2.0 technologies. Students shared their experiences using the objects with students from around the world (using Skype), gaining an insight into how others learn and the world outside their classrooms.
- *Connecting campuses* (Wodonga Middle Years College, 2009) – The schools used web conferencing to connect two Year 7 science classes from the same school but located at two separate campuses. The sessions allowed students to see each other's work, share their learning, conduct peer assessments and reflect on their work in the process. Web conferencing was found to increase student engagement and focus students on the content that was being taught.
- *Native Japanese* (St Leonard's College, 2009) - Japanese LOTE students used web conferencing to connect with native Japanese speakers in a school in Japan. Students took the initiative to run the conference, each learning 25 verbs and various adjectives to assist their discussion. Following the web conferencing session, the students were able to demonstrate what they had learnt, which included improved oracy, intercultural understanding, enhanced (Web 2.0) communication skills and motivation for learning a second language.

What is Voice over Internet Protocols (VoIP)?

VoIP (also called internet telephony, or broadband phone) is a transmission technology for delivery of voice communications over the internet. VoIP systems can usually interface with the traditional telephone network. One example of available VoIP implementations is Skype, a software that allows users to make low-cost telephone or video calls over the Internet. Additional features include instant messaging and file transfers.

Examples of use in Victorian schools

- *Using collaborative tools for literature circles* (Ranfurly Primary School, 2008) – Students ran their own literature circles and discussed books they were reading with students from other schools using online conferencing tools (Skype).
- *Robotics for Rurals* (Airly, Bundalaguah, Cobains, Cowwarr, Loch Sport, Nambrok-Denison, Seaspray and Wurruk Primary Schools, 2008) – Teachers and students from eight small rural schools in Gippsland worked on using Lego robotics equipment to produce a Lego robotics program, with mentoring from a local secondary school via webcams. Students completed set tasks, shared expertise, viewed other projects and interacted with other students across the network using Skype.

Technologies used in web conferencing and VoIP

- Web conferencing software e.g. Elluminate, WebEx, Dimdim, Adobe Acrobat Connect and Centra.
- Virtual classrooms – computer accessible, online learning environments intended to fulfil many of the learning facilitation roles of a physical classroom. The software offers a shared whiteboard and a chat space and allows video transmission and sharing of files.

What are teachers saying?

‘The project enabled the sharing of expertise across all schools, which each school alone could not afford. The networking between students reduced isolation and assisted with transitioning [to high school].’

‘It brought an engagement with the world outside the classroom, both for teacher and student. It also created a different kind of assessment practice, using real time video of the classroom as a reflective tool.’

‘It has increased...motivation...as students are keen to have oral practice during lessons now than they were previously for fear of shyness about speaking in front of others. It has improved aural skills as students seem more prepared to participate in listening activities.’

‘It's great and should be used more in the classroom...it enhances the content taught and the engagement of students. Students...participated more readily and actively...they talked about what they were doing...and excitedly explained both at home and to other teachers how fun and interesting classes were when video/web conferencing was used.’

‘Students asked questions of the guests that I considered ‘off task’ at times, however the learning that occurred was based on genuine interest. Students also began to ask questions in Indonesian and surprised me with the amount of language they could recall, something they often struggle to do in ‘revision’ classes.’

‘Some students feel more confident when they are using technology as a medium to communicate their learning.’

Considerations for use

- Teachers need to learn the basic skills required to moderate a web conferencing session.
- When working with other classes, schools or countries, teachers should be aware of time zone differences.
- Social etiquette is a vital component to successfully participating in or hosting a web conference.

4. Resources

Here are three resources that may assist teachers to integrate the use of Web 2.0 technologies in the classroom.

1. Learning On Line

To take their place as the digital citizens of the future, students must develop an understanding of the safe, responsible and ethical use of Web 2.0 technologies.

The Learning On Line website aims to assist schools to make the most of the opportunities and minimise the potential risks.

The website is underpinned by the belief that explicit education is needed around the safe and ethical use of the internet and digital technologies. It is designed to complement the Victorian Essential Learning Standards that define the 'essential knowledge, skills and behaviours students need to prepare for further education, work and life'.



1.

See: <http://www.education.vic.gov.au/cybersafety>

This website includes recommendations and resources that:

- assist principals to **LEAD** policy development and whole school planning and practices utilising research and evidence based pedagogy
- **SUPPORT** schools, teachers, students and parents to manage and use digital technologies safely and responsibly
- assist schools to **MANAGE** their internet access and to understand online legalities, including those related to digital copyright and online privacy
- assist schools to **EDUCATE** teachers, students and parents about the safe and ethical use of digital technologies and explore emerging technologies and their role in the classroom
- **EMPOWER** students by providing opportunities for student leadership, action and voice, and
- encourage teachers and students to **PARTICIPATE** in the safe and ethical use of digital technologies in the wider community.



2.

See: <https://fuse.education.vic.gov.au/pages/Teacher.aspx>

2. FUSE – Find Use Share Education

FUSE enables teachers to find, use and share quality education resources. It contains many of the resources developed by teachers who participated in these Research Projects. Victorian government school teachers can log in using their Edumail details to access extra content and features.



3.

See: <http://www.education.vic.gov.au/researchinnovation/virtualconferencecentre>

3. Virtual Conference Centre

The Virtual Conference Centre offers Victorian teachers free web conference sessions for meeting, learning and collaborating online, and hosts regular free events. This facility is available for use by Victorian educators in government, Catholic and independent schools, and Departmental staff in regional and central offices. Elluminate is the software currently used by the Department.

Web conferencing is a powerful way to connect, communicate and collaborate with others in real-time. It enables teachers to undertake professional learning and develop networks with their colleagues, no matter where they are.

Students can benefit from web conferencing too. Teachers can facilitate lessons online, access subject experts or join with other schools to work collaboratively on projects in an exciting, online environment.

The Department provides regular training sessions to support educators to facilitate their web conferences. These sessions are open to all Victorian educators and Departmental staff.

Web conferencing in DEECD

Web conferencing using virtual classroom technologies has been used in DEECD since 2007. The Innovation and Next Practice Division initially used web conferencing for running webinars for teacher professional learning. The program evolved to empower practitioners to book and facilitate their own sessions. The Innovation and Next Practice Division runs regular 90-minute training sessions for teachers on how to moderate a web conference.

More recently there has been an uptake of teachers using web conferencing to support student learning, with teachers at Distance Education Centre Victoria and Victorian School of Languages now beginning to book sessions with their students. (See graph below)

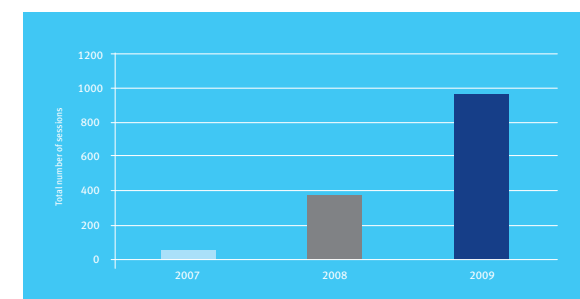


Figure 3. Number of DEECD web conferencing session from 2007-2009.

5. Appendix – Participating schools

The Department of Education and Early Childhood Development wishes to acknowledge the participating principals, teachers and students from the following schools:

2006 Emerging Technologies Trial Schools

Balwyn North Primary School
Collingwood College
Cranbourne Secondary College
Eaglehawk Secondary College
Epsom Primary School
Gisborne Secondary College
The Kew Cluster
Lilydale High School (Yarra Valley and Environs Cluster)
Lilydale High School
Lowanna College
Lynbrook Primary School
Mooroolbark College
Sunbury Primary School
Vermont Primary School
Wanganui Park Secondary College
Wedderburn College P–12
Wellington Secondary College
Whealers Hill Primary School

2007 Emerging Technologies Trial Schools

Ascot Vale Primary School
Bannockburn Primary School
Glen Iris Primary School
Hawkesdale P–12 College
Heidelberg Primary School
Korumburra Secondary College
Lynbrook Primary School
Myrree Primary School
Plenty Parklands Primary School

Silverton Primary School
Tyrrell Cluster (Base – Tyrrell College)
Yarra Junction Primary School

2008 Emerging Technologies Trial Schools

Airly Primary School
Amsleigh Park Primary School
Bairnsdale Secondary College
Baranduda Primary School
Bayswater Primary School
Bellaire Primary School
Belvoir Special School
Bendigo Senior Secondary College
Bogong Outdoor Education Centre
Concord School
Coral Park Primary School
Croydon Secondary College
Dandenong Primary School
Debney Park Secondary College
Drouin Primary School
Elwood College
Fountain Gate Primary School
Gilmore Girls Secondary College
Glen Iris Primary School
Hawkesdale P–12 College
Highvale Secondary College
Kew Primary School
Koorlong Primary School
Latrobe Special Developmental School
Leopold Primary School
Lilydale High School
Matthew Flinders Girls Secondary College
Meadowbank & Campmeadows Primary schools
Melbourne High School
Mooroopna Park Primary School
Mount Beauty Primary School

Niddrie (Rosehill) Secondary College
Ranfurly Primary School
Ringwood Secondary College
Robinvale Secondary College
Roxburgh Rise Primary School
Sandringham Primary School
Seabrook Primary School
Southern Autistic School
Sunbury Primary School
Thornbury High School
Trafalgar High School
Upwey High School
Wallan Secondary College
Warrnambool East Primary School
Wodonga Senior Secondary College
Yarra Road Primary School
Yarra Valley eLearning Community

2009 Emerging Technologies Trial Schools – Innovating with Technology

Balmoral Secondary College
Bandiana Primary School
Bannockburn Primary School
Bayswater Primary School
Blackburn Primary School
Bona Vista Primary School
Bright P–12 College
Canterbury Primary School
Carwartha P–12 College
Casterton Primary School
Casterton Secondary College
Creswick North Primary School
Croydon Primary School
Daylesford Primary School
Derrinallum P–12 College
Footscray City College
Grey Street Primary School
Hawkesdale P–12 College

Heywood Secondary College
Keysborough Primary School
Lyndale Greens Primary School
Mossgiel Park Primary School
Neerim District Secondary College
Noble Park English Language School
North Geelong Secondary College
Pakenham Consolidated Primary School
Preston Girls Secondary College
Rosanna Golf Links Primary School
Roxburgh Rise Primary School
Seville Primary School
Sommerville Secondary College
Thomastown East Primary School
Yarrambat Primary School

Collaborative Learning and Research Program (Round 1)

Anderson's Creek Primary School
Aspendale Gardens Primary School
Bairnsdale Secondary College
Belvoir Special School
Bendigo Senior Secondary College
Distance Education Centre Victoria
Echuca Special Education School
Grovedale West Primary School
Horsham West Primary School
Lalor North Secondary College
Lal Lal Primary School
Lilydale Heights College
Marlo Primary School
Matthew Flinders Girls Secondary College
Mooroopna Park Primary School
Rosebud Primary School
Taylors Lakes Primary School
St Albans Secondary College
Wodonga Middle Years College

Collaborative Learning and Research Program (Round 2)

Ararat Primary School
Bairnsdale Secondary College
Baranduda Primary School
Bellaire Primary School
Chandler Secondary College
Coburn Primary
Fairhills High School
Fitzroy High School
Hawkesdale P–12 College
Healesville Primary School
Kambrya College
Kerang Primary School
Loch Primary School
Nyora Primary School
Pleasant St Primary School
Seabrook Primary School
Traralgon Primary School - Grey Street
Victorian P–12 College of Koorie Education (Glenroy campus)
Wedderburn P–12 College
Yarrowonga Secondary College

Appendix Continued

Collaborative Learning and Research Program (Round 3)

Bentleigh West Primary School
Bimbadeen Heights Primary School
Boort Secondary College
Buninyong Primary School
Eaglehawk North Primary School
Lara Secondary College
Panmure Primary School
Preston Girls' Secondary College
Roxburgh Homestead Primary School
Roxburgh Rise Primary School
Rosamond Special School
Staughton College
Sunshine Harvester Primary School
Trafalgar Primary School
Wodonga Secondary College
Yarrambat Primary School
The University High School

Collaborative Learning and Research Program (Round 4)

Avila College
Bentleigh Secondary College
Brunswick Secondary College
Edenhope College
Eltham Primary School
Hoppers Crossing Secondary College
Mordialloc College
Oberon High School
Ringwood Secondary College
St Leonards College
Staughton College
Templestowe College
Warrandyte High School
Wodonga Middle Years College

Intel® SKOOL

Kambrya College
Malvern Central School
McKinnon Secondary College
Mordialloc College
Sandringham College
Western Port Secondary College

Languages Other Than English

Doncaster Gardens Primary School
Doncaster Primary School
Horsham Secondary College
Keysborough Secondary College

Microsoft - KODU

Bairnsdale Secondary College
Chalcot Lodge Primary School
Concord School
Dromana Primary School
Elsterwick Primary School
Eltham Primary School
Haddon Primary School
Healesville Primary School
Hoppers Crossing Secondary College
Labertouche Primary School
Laburnum Primary School
Lakes Entrance Primary School
Laurimar Primary School
Monash Special Developmental School
Mt Waverley Primary School
Neerim District Rural Primary School
Preston Girls Secondary College
Ringwood Secondary College
Seabrook Primary School
Toolangi Primary School
Trafalgar High School
Verney Road School
Werribee Primary School
Woodford Primary School
Yarra Junction Primary School
Yarra Road Primary School



Australian Government
Department of Broadband,
Communications and the Digital Economy



A Victorian
Government
initiative
The Place To Be



Department of Education and
Early Childhood Development